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THE SOUTHERN AGRICULTURIST.

(NEW SERIES.)

Vol. IV. FOR MARCH, 1844. No. 3.

From the Pendleton Messenger.

REMARKS ON THE INDIAN PEA,

AND OTHER MANURING CROPS, AND FORAGE CROPS.

To the Farmer's Society of Pendleton,

Gentlemen:—When, at your called meeting on the 26th inst. you requested me to deliver an address at your approaching annual meeting, I was compelled to decline the honorable service, by several considerations which it is unnecessary here to repeat. But though unwilling to attempt, at such short notice and amidst other and uncertain calls of duty and business, to undertake so formal a matter as a regular *address*, it has occurred to me that possibly I may in some degree meet your wishes in another mode, in which, the absence of all pretension to the dignity of form or manner, will at least serve to prevent that disappointment which would be produced by the performance falling below your too favorable and too high expectations. I will, therefore, hastily as my position and time compel, and in such plain manner as our recent personal conference was conducted, repeat in writing, or enlarge upon, and endeavor to more strongly impress some of the subjects of my then verbal remarks; and also, present some other cursory views which seem applicable to your own agricultural position and circumstances.

Among the great and peculiar blessings of South-Carolina, are the two important products, or rather the capacity of climate and soil, for producing them, the sweet potato and the many varieties of the Indian or field pea. And although both these crops are cultivated on almost every plantation in the State, and generally to great extent, and though one or both are used largely every where to furnish food to man and beast—still I venture to assert that the value of these products have not been yet fully appreciated by any one of their cultivators. As the sweet potato belongs less to your neighborhood than to the lower country, I will pass it by, with no further remark than that I deem it a far more valuable root crop than any other produced in the United States; and that even on plantations where there is the most use made of this root, its value will not be fully availed of, while there shall exist any scarcity of those dairy and live stock products, which are elsewhere obtained from much less nutricious roots, as turnips, beets, carrots, Irish potatoes, &c.

For the pea crop, the climate and soil of this region may perhaps be also somewhat less propitious than those of the lower country. But no where else have I met with better growths of peas than seen recently here; and no where such modes of raising the crop, (though but in few cases) to serve for hay or for manure to the land—and of which peculiar and as yet very limited practice, I wish to induce your adoption and extensive use.

The almost universal mode of raising the pea crop in South-Carolina, is by planting among corn. The length of the summer permits this planting to be done after the corn is well advanced in growth, and for the peas to have time to perfect their growth after that of the corn has ceased. Universal experience seems to have confirmed the value and profit of the pea crop thus made. But this mode, however advantageous, seems to me of far less benefit, than either of several other modes. Of one of these I have myself had large and satisfactory experience, under a less favorable climate—and others I have but just seen in this neighborhood, or elsewhere in this State.

Whatever may be the amount of product, or of profit, from raising peas among corn, as a secondary cultivated crop, it is attended with much trouble in the planting, and separate tillage.

Peas, (like red clover, which is also a plant of the pea tribe,) draw sustenance very largely from the atmosphere, by their system of broad leaves, compared to what they draw from the soil.—Hence such plants take less from the land, and return more to it, than any others, and therefore are the best of manuring or meliorating crops, to be alternated with the more exhausting grain, and tillage crops. In this respect, red clover has stood unrivalled, because in the more nothern and improved lands, where its admirable manuring and cleansing qualities have been fully experienced, peas cannot be as well raised. From some trials made here, there is good reason to hope that red clover may be raised to great advantage, even without lime, the application of which would ensure its perfect success. But, even if this were not so, the pea crop, sown broad-cast, is scarcely less valuable than clover as a manuring crop, and superior to it in several other respects. And the great ground of recommendation of the pea crop, is that it may be introduced after either of several differeut grain crops, and to fill longer or shorter intervals of time, which would otherwise be fruitless for melioration, or serve to fill the land with foul weeds and depredating insects. In this manner, peas may be advantageously used to improve and add to any scheme of rotation of crops—lessening the exhausting operation and destructive effects of the worst rotations—or making one really improving and excellent, which without the addition of peas would be more exhausting than meliorating.

The principal experience which I have had of peas as a manuring and cleansing crop in my own practice, was the sowing the

field broad-cast, upon a good and clean ploughing, and harrowing in the seed, (of the cow-pea, or some other variety producing much vine and leaf,) about 1½ bushels to the acre. The crop at or near maturity of the more forward pods, should be well ploughed under about a month before the time to sow wheat. The wheat should be sown on the same furrow, and covered by the harrow. This is an admirable preparation, serving by the thickly covering and shading and smothering and subsequently killing of the peas, well to cleanse and also to manure the land, and to produce a much better crop of wheat than can possibly follow corn, cotton, and still more wheat itself or other broad-cast grain. The sole objection to this preparation is the cost of the ploughing for the pea seeding; and this perhaps may be often saved by a new practice of which I have recently learned something elsewhere. The black pea, and also a dark red pea, will lie upon the ground, or remain covered therein, through winter without rotting, and will germinate and grow in the spring. Availing of this property, these peas have been successfully sown both late in the autumn (or early part of winter,) with wheat, and in spring with oats. The peas grow but little until the grain crop is removed, and then grow rapidly, and soon form a good cover. It is not to be supposed that this plan will always succeed. But it has done well, on a small scale of operations, for three years as conducted by Wm. R. Davis Esq. in Fairfield, and for six years on a larger scale, by Maj. J. Littlejohn in Union.

If it be not desired to use the broad-cast pea crop to prepare for and manure for wheat—or if it be preferred to save the crop for hay—then the latter may be done as I had the benefit of seeing but a few days ago, on the neighboring plantation of one of your society, the Hon. J. C. Calhoun. The crop of peas was mowed by the scythe; and after lying a few hours in the sun, and without being turned, the vines were put up in high and narrow cocks around a stake 5 or 6 feet high, to stand until cured enough to be stored in the house. This plan (which, by the way, with smaller cocks, is the best mode I have ever known of curing all kinds of grass for hay)—saves the trouble of turning the hay with forks, and the loss by such turning causing the dropping the leaves and shedding the ripe peas, as well as too much sunning the hay. The provender thus saved is excellent, and the land is left clean for any succeeding crop. In this case, the cow-pea was the variety used, and the sowing was in May, at the rate of two bushels to the acre.*

* It was not until after this communication had been sent to the President of the Society that I saw another mode of harvesting pea-hay, which is still more safe than that described above, though requiring more labor. Stack poles 12 to 15 feet long, and about 4 inches in diameter at the larger end, are set firmly in the ground, where wanted. At about 4 and also 3 feet from the ground, the pole has an auger hole 2 inches in diameter bored through, and a strong round stick five feet long passed through each hole. The pea-vines are pulled up or cut, when there is no moisture remaining on them from rain or dew, and after lying part of a day, or otherwise immediately after

A still more admirable plan of raising peas I saw on part of the same plantation. The seed had been sown broad-cast (one bushel to the acre,) in the corn land at the last ploughing, which was in July. The crop of corn we suppose may be 25 bushels to the acre; and the peas, (as seen on the 26th of Sept.) formed a thick and rank cover of the whole ground.

I will now suggest the application of what appear to be the advantages offered by the pea crop, to the increase of the general improvement to be attained from rotation of alternate planting.

The great benefits to be attained from a proper system of rotation of crops, including rest to the land, or of manuring crops alternating with the exhausting, would seem scarcely to be known in South-Carolina, as nearly all existing practice is in opposition to, or disregard of the principles of rotation. In the lower and middle districts, where cotton and corn are the great and all important crops, and where there is scarcely any broad-cast crops, there is also scarcely anything like rotation practised. In the upper districts *bordering* on the mountains, and, where cotton ceases to be a principal crop, and wheat (or oats) become so, there is in use an imperfect kind of rotation, but which is the result, not of reasoning and design, but of necessity. For the wheat, or oats, demanding a preparatory cleansing culture, *must*, if raised here at all, follow corn. And as wheat and oats are taken off the land early in summer, the field *must* have rest from a tillage or exhausting crop the remainder of that growing season. And if the wheat and oat ground be not separately from the other land in tillage, the weeds and natural grass, which rapidly cover the land after the grain has been removed, *must* be left ungrazed, and thus be permitted to die upon and manure the land slightly, before the next succeeding year's crop of corn shall begin again the short round of exhaustion. Now whether the practice be this very simple and very scourging two shift rotation—or of three shifts, by adding a third year of rest—or of any longer and still better succession of crops—the pea crop may be added thereto, even without any other change, so as to serve admirably well to mitigate the severity of the most exhausting course, or to increase the manuring effect of the most lenient and meliorating. Thus, in the year of rest, if there be one, a good broad-cast pea crop may be substituted for the less rich and less dense growth of weeds and scanty grasses. After reaping the wheat or oat crop, peas may be immediately sown, if not obtained by previous sowing with the grain, as above referred to. And

being cut, (according to weather and other circumstances,) the vines are stacked around the pole. There ought to be some open rubbish on the ground as a foundation; but even this is rarely provided. The stack ought to be 5 feet in diameter, until near the top, when it is brought to a point, and a slight cap of straw put on, if designed to stand long. The sticks serve to admit air, and to prevent too much of the weight of the stack pressing on the lower part. The provender is thus well cured and entirely saved. This method was first introduced in this neighborhood by Mr. Thomas M. Sloan, who has practised it successfully for eight years.

with the last ploughing of every corn crop, peas may be again sown broad cast, and (if succeeding as well as this year, at Fort Hill,) a fine secondary crop obtained for the single cost of the seed and the labor of casting them. Nor would it be necessary that all these intervening pea crops should be applied as manure. Perhaps one of them given wholly to the land in three or four, or even five years' might suffice for fertilization, and the other pea crop be in part or in whole mowed and cured, for hay or winter forage, or otherwise consumed on the land by fattening cattle and hogs.

In addition to the highly valuable manuring and cleansing qualities of the pea crop, it has another important value in any rotation, presented in the complete *change of condition* which it makes in land previously under either cotton, corn, wheat or oats. In such change of condition consists, in my opinion, the greatest benefit of a system of rotation. On this particular head some remarks and new views will be offered, though I shall not discuss generally the ample subject of the theory of rotation at present, either as approving or to oppose, any other and more generally received reasons for the practice of rotation.

I deem that a change and succession, or rotation of several different crops is beneficial mainly in two modes, as follows:

1st. Because one crop, by its necessary and peculiar tillage and management, serves to prepare the land for the reception of another of different kind, and requiring different tillage. Thus, corn, cotton, or tobacco, all requiring after-tillage, are not hurt, but on the contrary are improved, by being grown on land foul with the weeds &c, of a previous growth, and on which, and with no better preparation, wheat or oats could not thrive. And these crops therefore, require to follow either of the former tillage and cleansing crops. By such following of either corn, cotton or tobacco, by wheat, oats or rye, it is obvious that both must fare better than to reverse the order or to let any one crop be kept for successive years on the same field, or to be alternated only with other crops of similar tillage and similar character and habits.

2nd. The many disasters which in so many ways sometimes injure all cultivated crops, I suppose to be mainly caused by insects; of which many kinds of the most injurious may be so minute in size as to escape observation. Now every crop and plant has its particular tribes of parasites, or depredating insects or animalcules, which if not confined by their natural wants to that particular growth, or to its near kindred plants, for sustenance and for shelter, cannot thrive on other different plants, and be sheltered in other very different conditions of the land. Thus, if any one crop, and of course one kind of condition of the ground, be continued though many years—whether of wheat or corn or cotton—it may be safely inferred that the tribes of depredators of which the sustenance and shelter are, more favored by such crop and its tillage, will continue to increase generally from year to year, and to become

more and more destructive in their ravages. Other circumstances, as of weather &c. when favorable will still more favor such increase, and if unfavorable will obstruct and perhaps conceal the injury, still inflicted however, in a less degree. But with such variations, and on a general average of years, crops of the like kind continued year after year, and the land kept in like condition must serve to render the crops more and more diseased and unproductive, even though no actual decrease of fertility of the soil be suffered. Now, instead of this, suppose every year, or even sometimes oftener there shall occur as complete a change of crop and of condition of the land, as the interposition of a broad-cast and dense cover of peas, between each two tillage or grain crops. It is scarcely possible to conceive a greater change; and it is very improbable that the myriads of insects which had been sustained and kept increasing on any one crop, whether of corn, cotton or wheat, can thrive or even live after such great change of circumstances.

I shall not presume to propose for this region any particular scheme of rotation as the best. To decide such a question is always extremely difficult for the most experienced and enlightened cultivator, for himself and in the place of all his foregone labors and observations. And far less qualified would any person be to prescribe a precise plan of rotation, in a region and for circumstances very different from those to which he had been accustomed. But if the above general views are sound they may be easily and beneficially applied to practice, and in various modes. I will merely add, that the power, however, of introducing the pea crop in so many ways, and for the several different products of peas, green food, hay, or manure, offers facilities here for rotations more perfect in operation, or more in conformity with reason and theory, than any known to me in practice elsewhere.

In the use of green crops as a manure, it is a common error of new beginners to make the attempt on poor land. The green (or dry) manure crop for the poorest land, should be merely its own natural growth of weeds, permitted to die and fall and decay on the ground, and this to be interposed as often as may be between the tillage and exhausting crops. This manure of weeds, if of less amount and value than an artificial manure crop, as peas, at least costs nothing for seed, preparation or tillage. To obtain profitable returns from peas or clover, the land should be able to bring at least a moderate growth. For very nearly the same cost of seed and ploughing would be incurred by having such green crops on either of two pieces of ground, of which the one would yield four times as much growth, and consequently effect four times as much manuring and improvement as the other.

Though the pea crop is very valuable for dry forage, making indeed an excellent hay, it by no means follows that grasses for hay should be neglected, as they are here, and which neglect is a most deserved opprobrium of the agriculture of South-Carolina in

general. I will not enter upon the copius and important subject of grass husbandry, and its products so much needed in this State, and yet so easily at command. One particular crop and practice will only be referred to, because well known to all now present. This is seen in the meadow of C. C. Pinckney, Esq. near the village of Pendleton. The growth is the Rice-grass, (*Lersia orizoides.*) which is a natve and a very productive and valuable grass for hay, and which, as Mr. Pinckney's meadow shows, may be produced in abundance in every bottom having a stream running through, by means of a very simple and cheap mode of irrigation. This grass thrives best in this southern climate, and may be obtained in every piece of suitable ground by merely causing the stream to flow or trickle slowly over the surface. It is not referred to as the best grass for culture, and product, but as one easily obtained, and at small expense. I have known it in my own wet meadow ground for 30 years, and highly appreciate its peculiar productiveness and good qualities for hay. But I had not learned how to give it entire possession of the ground, as is done by Mr. Pinckney, nor is its growth in Virginia by any means equal in size to that which is seen in South-Carolina.

The management and maintenance of good meadow land, for hay, are cheaper than those of even the poorest land under tillage crops; and the net product of hay is not surpassed by any but the richest of tillage crops. Yet no kind of agricultural product, essentially necessary for ordinary consumption, is so much neglected. Hundreds of thousands of dollars are every year paid for New England hay imported into Charleston and Savannah, and consumed in localities where the greatest labor of the cultivators are employed to keep down the exuberant growth of grass. And in these same localities, which are peculiarly and admirably suited for profitable dairy and other live-stock products, all such products are scarce, mean, and at very high prices.

These latter observations apply much more to the sea-board than to this region. Bnt there is very little more attention paid here to grass husbandry; and if the scarcity of products be less, than in and near the cities on the sea-board, it is only because there is less demand for them, and less consumption to produce scarcity.

Most planters do not feel the necessity nor understand the propriety of making hay crops, because, as they say, they now make enough long forage for their stock, and if they were to make hay, they would have no market for it. Hay ought not to be sold at all from ordinary plantations; and in no cases except of excessive and disproportioned production, owing to very extensive and rich meadow grounds, or of great demand and high price for hay, as in the neighborhood of towns, together with the facility of obtaining purchased manures in return. In ordinary cases the planter who makes hay will be himself the most profitable consumer of it, if using

it properly. And perhaps, those who think that they have and consume enough forage for their stock, from their present corn-fodder and other offal of grain crops, might find it still better to add thereto the hay from a few acres of meadow. But even if there be no deficiency of food requiring such addition, and there were 50 acres of good permanent meadow added to a plantation of 500 acres of arable land, all this new product of grass might be profitably reaped and consumed on the plantation. And before increasing the stock products, by the use of these new resources for feeding and fattening animals, an earlier and most advantageous use may be made of hay by every planter, and to a large amount, by substituting it for the corn-fodder which is now universally gathered, and which laborious and injurious process might then be dispensed with altogether. I am sensible that my thus denouncing a practice which is almost universally approved and in use, and in my own country no less than yours, will appear to many as an agricultural heresy, not only unsustained by plausibility, but even absurd and ridiculous. Yet I am well assured, and by experience as well as by theory and reasoning, that the gathering of green corn blades, or cutting off the tops for fodder, is always injurious to the grain; and that the loss of value, in the value in the grain added to the cost of labor, and risk of securing the crops of fodder, together, greatly exceed the whole value of the fodder, usually saved. It would perhaps require more time and space than all these remarks should occupy, for me to present to you at full length all the grounds for this opinion; and therefore I will add but a few remarks to the assertion of the general proposition.

In your own neighborhood, gentleman, I have had presented to me a new evidence of the truth of my views in this respect. In observing the novel process of making sugar from corn-stalks, as conducted on a small scale by Major George Seaborn, I noticed the obviously much larger quantity of saccharine juice, and its greater concentration, or degree of sweetness, in the stalks from which the ears had been taken off as soon as they had shot out, compared to those which had been permitted to form grain.—This difference, it is manifest, is owing to the greater part of the sugar, in the latter case and as nature designs always, having passed into the grain, and where it is converted to starch. And this, alone would show that the saccharine juice of the stalk is needed to form and perfect the grain. But where the ears have remained to grow, and at the latest time of growth of the corn for gathering fodder, (the leaves still being mostly grsen,) and the grain firm and almost hard, there will be yet remaining in the pith of the stalk a large quantity of saccharine juice. Every particle of this juice is destined to the better filling of the grain, and will be so used, if the life of the plant is not cut short. But, when in this state, (nay, often much earlier than at this period of growth,) the leaves are stript, and the top cut, the plant immediately dies, and all subsequent

conversion of the sugar then in the stalk to grain is effectually prevented. The grain of such corn is more or less shrivelled and lighter by several pounds in the bushel than the grain from which the fodder has not been removed. As long as a blade is green, it is acting to sustain the life of the plant and to help to increase the bulk and weight of the grain.

But, putting aside this great and all important objection to the usual mode of saving fodder, there are other conditions which alone ought to serve to induce the substitution of hay, whenever it is practicable. Perhaps not one of you, gentleman, has ever taken, an account of all the labor and cost of securing a crop of corn fodder, and comparing it with the value of the crop secured. Neither have I. But if such estimates were made accurately, and in sufficient number to present a fair average of crops and of seasons, I think it would be found that the general cost would not fall much short of the product, and perhaps might exceed the whole returns. Besides the necessary labor in good corn and in good weather, which far exceeds that of hay-making, there is great risk of a spell of rainy weather occuring during the season (mostly in September) for this harvest; and every rain causes much trouble, and much rain produces great and inevitable loss of the partially cured fodder. Again—this is precisely the season most dangerous to health, wherever malaria is at all to be feared, and no kind of plantation labor is so likely to effect health injuriously as the gathering and securing of fodder. Even in fine clear weather, the high and rank grass (or peas) among the corn, and the corn blades are wet with dew, early in the day, and again before night, and the laborers are thus necessarily made wet. And the crispness of the cured (and sun-burnt) fodder, often forbids its being handled in the day time and requires the night air to prevent great loss in the moving and stacking. This makes much of the work necessary to be performed at night, and which is an injurious or hazardous exposure of the laborers, both because of the night air, and the dew deposited on the high grass. If any one accustomed to and contented with this slow and tedious and altogether uninteresting portion of plantation labor, could but once compare it experimentally with the rapid, safe, enlivening and delightful operations of hay-making, his sensations would as strongly urge the substitution of the former by the latter, as ought to be done by sound calculations of profit and loss.

EDMUND RUFFIN.

Pendleton, Sept. 28th 1843.

From the New-York Farmer and Mechanic.

CATTLE DISEASES AND FOUL PASTURES.

In the September number of the U. S. Farmer was inserted a communication from Dr. Whitlaw, in which allusion was made to the diseases appearing generally amongst our cattle, but more

particularly to an epidemic which has for a few years past been raging destructively amongst stock of every description in England, and now, we regret to find, spreading gradually through this country.

Press of matter at that time, would not allow us to do other than call the attention of our readers to the importance of the subject, and defer to a future number the remarks which we had then determined to make upon it.

The contageous disorder more particularly alluded to, has not, it is true, visited us yet in so fatal a form as it has our friends across the Atlantic. That it is, however, becoming more virulent in its effects with the return of each succeeding spring, we have the authority of those well acquainted with its symptons and its destructive consequences for avowing.

"The disease," says the Report of the Veterinary Committee, "generally commenced in the mouths of bullocks, cows and calves, by the appearance of blisters and ulcers on the tongue, and sore throats in some; the feet at the same time, or very soon after, became ulcerated, as also the palate, lips, and nose. It was accompanied by rigors or chills, succeeded by feverish heat. The noses and feet of pigs were attacked, but the feet only of sheep, except in a few instances in which the mouths were effected, as in cattle.

"In dairy cows the teats became affected with pustules and ulcers at the same time as the mouth, the udders subsequently became inflamed and tumefied, and abscesses were formed, terminating frequently in a total loss of milk, and in less severe cases, in a diminution of quantity.

Although great difference of opinion exists as to the cause of this destructive scourge, we believe confidently with Dr. Whitlaw, that both it and many other diseases to which our stock is liable, may be, in a great measure, ascribed to the prevalence of poisonous weeds in our pastures and our fields. To enable us to see how far this supposition is borne out by probability, let us inquire into the character, the nature and properties of some of the plants that we find growing amongst our grass and in our fields. Dr. Whitlaw (whose opinion on such a subject we consider to be of great weight, from his long study of Botany and thorough knowledge of the medicinal properties of plants) says, "of all poisonous plants, there is one which I look upon as being preeminently deleterious. I mean that species of the *Ranunculus* commonly called the Butter Cup."

Dr. Bigelow, of Boston, in his *Medical Botany*, observes—

"Since the time of Discoridus the acrid and stimulating properties of the *Ranunculi* have been well known. This acrimony is so powerful that it speedily inflames or corrodes the lips and tongue, if kept in contact with them. In the nostrils, it acts as a violent sternutatory; and if swallowed in considerable quantity, it brings on great pain, heat and inflamation of the stomach; and has even occasioned convulsions and death."

Krap states that "he gave a large quantity of the juice of the butter-cup to a dog, which brought on vomiting and great distress; and the dog being killed, the stomach was found inflamed and contracted, and the pylorus hardly pervious."

Curtis, in his *Flora Londinensis*, when treating of the *Ranunculus*, says—

"Instinct rarely fails in directing graminiverous animals to reject such herbs as would prove injurious to them; hence we seldom find this and the other acrid species of crow-foot eaten by cattle; but we know that under certain circumstances they will err, and become poisoned or diseased."

Gerard says, "This plant is called *Bane-wort* by some, because it is dangerous and deadly for sheep, and that if they feed of the same, it inflameth their livers, fretteth and blistereth their entrails."

Haller says that "The livers of horses which had fed on this *Ranunculus* became rotton, and full of little bladders of water, as well as small animals resembling flounders."

Many experiments have been performed to test the destructive properties of the different species of the *Ranunculi*, or Butter-Cup. We content ourselves by laying an account of two only, before our readers, as performed by the celebrated Orfila, Professor of Chemistry and Natural Philosophy in Paris.

First, he states, "five ounces of the juice of the Ranunculus, prepared by saturating the leaves with two ounces of water, were introduced into the stomach of a small robust dog. The æsophagus was then tied. An hour afterwards the animal made efforts to vomit, and moaned. He died at the end of twelve hours, and had exhibited no other phenomenon than a state of great dejection and insensibility. The mucous membrane of the stomach presented here and there patches of a lively red; the other portions of the digestive canal were in the natural state; the lungs contained a great quantity of fluid blood, and exhibited several patches which were livid and of a dense texture.

Experiment 2d. "At eight in the morning, two drachms of a watery extract of the same plant, prepared by decoction, were applied to the cellular texture of the inside of the thigh of a strong dog. In the course of the day the animal experienced nothing but dejection. He died at ten at night. The limb operated on was tumefied, infiltrated, and very much inflamed; the inflammation extended to the muscles of the abdomen; the heart contained coagulated blood; the lungs were redish and distended with blood; the digestive canal was not affected with any sensible injury."

William Salmon, Physician to Queen Anne, in his *Family Herbal*, when pointing out the medicinal effects of the Crow-foot, or Butter-cup, observes, "They may be applied externally, but none of them should be used inwardly, being but little better than *poison*, by reason of their ulcerating property."

We think we have said enough about the Butter-cup to prove that it possesses properties destructive to health. Its character

also, and the effects it produces, as described by the authorities we have quoted, show a striking similarity to the symptoms and manner of affection as reported by the Veterinary Committee.

We shall briefly allude to another poisonous weed to be found growing luxuriantly in our fields; we mean the *Euphorbia*, or *Spurge*. Of this plant Dr. Whitlaw remarks, in his work entitled "*New Medical Discoveries*,"—

"I have for many years turned my attention to the effects of the euphorbia, both in Britain and America. It was one of the first objects that attracted my attention in Scotland. After the grain had been got in off the farm that my father managed there, the sheep were frequently turned into the stubble fields, and the consequence of their feeding was, that in twenty-four hours afterwards a number of the young sheep and lambs died. I was then studying botany under a botanist, who had read some of the papers published by Linnæus on the subject. My instructor could readily discover what was the cause of their death. Upon opening about twenty of them, I found a great quantity of the euphobia, which had inflamed and ulcerated their stomachs and caused their death. Many of them that did not die were much swollen, and had their bowels relaxed; and although they were removed from the stubble fields, the latter effect continued for some time afterwards, which ultimately caused them to pine and die."

Many experiments have been tried with this plant on dogs and and other animals by Orfila and others, and the result is proof beyond contradiction, of its being a most acrid poison.

Linnæus, in his *Materia Medica*, observes of this plant, that "Its quality is milky, acrid, and sceptic; its power corroding, rubefacient, blistering, ulcerating, stimulant, expelling, drastic and sternutatory."

The Poppy is another very injurious plant. The power and effects of the extract of this flower (opium) upon the nerves and senses is too well known to need any more than mere allusion to by us.

"I am no stranger," says Dr. Whitlaw, "to the effect of Poppies on horses. A friend of mine, who sometimes feeds his on green vetches, with almost an equal quantity of poppies, directed my attention to the circumstance, that all the animals but one that partook of the latter, were hide-bound and had their hair standing on end. In consequence of inattention to the food of these animals, they have frequently to be drenched with drugs, and have their legs blistered in order to draw off the poisonous humors from their bodies."

The only other weed to which we will allude is the *Cicuta Virosa*, or hemlock, or cow-bane—usually found in moist and wet places, —possessing acrid and nauseous qualities, with narcotic and repelling powers, producing inflammation and delirium.

The effects of this plant upon cattle may be best illustrated by an anecdote, as related by Linnæus during his sojourn in England. At that time the cattle were affected with what was called the murrain, in the spring of the year, and which, for want of a better knowledge of the disease, was generally ascribed to witchcraft, and the influence of some poor old woman. And it did not unfrequently happen that she was brought to the stake and faggot to expiate for her supposed crimes. There was a person who was held in great repute, as being fully competent to break the spell, and cure the cattle; so great were his powers that even many of the *literati* of the day believed in his miraculous powers in counteracting the baneful influence of the agents of the devil.

Linnæus was, of course, an unbeliever, and went to put the man's power to the test. He describes the scene as follows:

"The arch operator had a number of piles of shavings, hay or straw, laid at convenient distances in the field, and a great number of men with clubs. The cattle were brought up and placed between the men and cocks of straw; the operator had a sort of match-paper, wherein the charm lay, and which he called *need-fire;* (as he assured the public no other fire would break the *spell;*) he set fire to the combustibles,—the animals had a great dread of fire and endeavored to make their escape, when they were met by the men with clubs; a terrible conflict took place between the men and the animals: what from the roaring and bellowing of the cattle, from the severe action of the imagined witchcraft, and the severe mauling from the clubs to force them among the fire and smoke, the witch's spell was completely broken. The artful scene being over, Linnæus observed that the cattle which bled at the nose and the bowels relaxed the most, were the best cures: he begged of them to let one of the cattle die that had not been subjected to the discipline, and he would show them at once the real cause of the cattle's illness. He then took a knife, opened the stomach, and found the *Cicuta Virosa*, or cow-bane, and other poisonous plants, which were the cause of their sufferings. Linnæus soon suggested a more mild mode of treatment, by boring the under side of the horn, so as to wound the arteries. In this manner the poison taken into the circulation, so highly injurious to the animal and vital spirits, would immediately pass off."

(To be Continued.)

From the American Agriculturist.

CULTURE OF PINDARS, &c

From the experiments I have made in cultivating the pindar or ground-pea, I think you would do well to call the attention of your southern readers to that subject. I planted the 18th February last, three acres in pindars, in rows five feet apart, the peas about twelve inches apart, in a common small furrow made with a bull-

tongue plough, on perfectly level ground, having first broken up and harrowed it well. The weather afterward in March was very cold, wet, and unfavorable, and killed many of the peas which had sprouted, so that I had a very poor stand; they, however, grew finely, and interlocked across the rows, and covered the ground pretty well. On the 27th October, I began digging (for fear of frost) by loosening the ground a little round the bunch with an iron fork with three prongs, each above thirteen inches long, and then pitch the fork under the tap-root and pry it up; a hand follows and lifts up the bunch, most of the peas adhering to it, and shakes the *sand* (dirt we have none) all off, and lays it out straight to cure like hay; when sufficiently cured, tie up in bundles the proper size for a cutting-box, and stow away for winter food for horses, cows, &c., than which there can be nothing better or more nutritious. I cut a bundle of pindars, peas, tops, leaves, and roots, and then a bundle of rice with the grain all on, and thus mix them together, to feed my work-horses, and milk-cows, and find them all doing better than on any food I have ever tried here. The pindars that are torn from the vine are partly left on the top of the ground, and can easily be picked up after a rain; I then turn the hogs in and they gather the balance, and fatten as finely on them as on corn. Our poorest land will yield fifty to eighty bushels of the peas, and over a ton of hay per acre, and, altogether, I regard it as one of the finest crops the southern farmer can raise. If we could afford to give an entire crop to the land, I am persuaded it would be quite as good as a crop of your best red clover to fertilize it. There has been a mistaken policy pursued, almost universally, in cultivating the pindar, by covering over the top with earth when they begin to bloom: this is not only unnecessary, but positively injurious, although the top, or vine, grows straight up at first, yet when it is time to seed, the small fibres on the end of which the pea grows arise, the vine inclines to the ground until it finds a proper location, and then extends its branches two, three, or four feet in length in every direction, touching the earth. The only cultivation requisite, to keep the ground loose and clear of weeds and grass, and as level as possible, so that the fibres on which the pea grows can penetrate the ground easily. I intend, next year, to plant pindars in hills, or, rather, in checks, two feet apart each way, which will cause them to grow in upright bunches, yielding more hay, and will be easier dug, and, I think, will probably yield as many peas.

For the last three weeks I have kept sixty sheep on five acres of sweet potatoes. They have eaten all the leaves and most of the vines, and have evidently improved very much. This does not hurt the potatoes, and the land gets all the benefit of the manure.

We had our first white frost on the 28th October, but so very light as to hurt nothing; since which we have had no more, and probably will not before next full moon, 6th December. Last

year our first frost was the 18th November, and very severe; in 1841, the same as this year. Last spring we had frost as late as 29th March. We do not generally have frost after the tenth February. We have had an unusual quantity of rain the past summer and fall, which injured our little crops here very much, particularly sweet potatoes on very level lands.

The grape is about receiving that attention it so justly merits here, from a neighbor of mine who possesses the proper degree of energy, industry, and practical knowledge, (having spent his youthful days in the Rhenish vineyards,) to succeed with any thing he attempts. He came here and settled in the woods last February, and has already ate grapes of his own raising; besides, he is a farmer in every other respect, and his improvements already, are well calculated to put us all to the blush. I trust his example will have a good effect on the whole neighborhood; we have needed such stimulus here bad enough. I have no doubt he has collected more manure, and made more compost for the benefit of his land, in the last nine months, than every man within nine miles of him has done in the last nine years. There are others, however, here, who are not neglecting entirely their agricultural interests.

JOHN J. McCAUGHAN.

Palmetto Farm, Mississippi City, Nov. 24, 1843.

CORN-STALK SUGAR.

The following letter of Mr. Webb, which was read at the meeting of the Agricultural Society of New Castle County, Delaware, in September last, is highly interesting; the more so as it gives the result of an actual experiment in the culture of corn-stalk sugar. The production of 3 tons of fodder, 500 lbs. of sugar and 50 gallons of molasses, from one acre of land, and that too by one not a regular sugar planter, versed in all the minutiæ of the business of grinding, boiling and granulating, is in the highest degree satisfactory, and, we doubt not, will encourage others to embark in making the experiment of raising sugar from corn-stalks. The enterprise is yet in its infancy, and it is reasonable to suppose that, as it advances, the spirit of improvement will simplify the whole process, so as to enable the planters generally to raise a large portion at least of the sugar consumed in their families. Nor will it stop here; for if subsequent experiments should prove that the cultivation is profitable, the sugar equal to that produced from the sugar-cane, instead of being large importers of sugar, the U. States will become exporters. The subject is certainly one of importance to our planters, and we hope they will give it a fair test by patient investigation.

[*So. Cultivator.*

Wilmington, Del. Sep. 13, 1843.

To Dr. W. Thomson, President of the New Castle County Agricultural Society:

Dear Sir,—Since my last communication to you on the subject of manufacturing sugar from corn, a sufficient time has elapsed to bring the ideas then advanced to the test of experiment. This has been done to a considerable extent by many individuals in different parts of the country; the results (so far as known) have confirmed every reasonable expectation, and given confidence to all interested in a successful issue.

Notwithstanding the disappointments and failure necessarily attendant on all new enterprises, enough has been developed by the efforts of experimenters to show beyond a doubt that this manufacture can be profitably carried on.

If any one skeptical on this subject, will take the trouble to chew the pith of a corn stalk which has ripened without producing grain, his doubts will vanish. Indian corn and sugar cane belong to the same family of plants, and offer many points of resemblance.—The saccharine matter found in their stalks, is exhausted by the process of vegetation in the formation of seed; and the sugar cane will no more yield sugar after it has perfected its seed, than will corn under the same circumstances. From analogy then, we must conclude, that the plant most productive in seed, will be most productive in sugar. This plant is Indian corn. That such a result has not yet been fully confirmed by experiment, is no proof of its incorrectness. The best mode of preventing the formation of grain upon the plant is not yet understood. The plan hitherto practised, of taking off the young ear is as objectionable as injurious to the stalk. From some trials made the present season, it is believed that taking off the tassel will be found effectual in securing the object. Let the corn be cultivated at such distances (according to the quality of the land) as will grow the stalk about an inch in diameter.

As soon as the tassel appears sufficiently to be taken hold of with the hand, it should be pulled out; this operation does not injure the stalk in any perceptible degree.

But without anticipating improvements we will give a calculation from the results which have been actually obtained. In the first place, the fodder is at least equal in value to a crop of the best timothy hay. No green food which can be raised on a farm, is to be compared to it for increasing the milk of cows. It may be preserved for winter use to great advantage, by packing it, when partially cured, alternately with layers of any straw. If properly saved, this part of the crop will pay all expenses. We, last season obtained from one acre between six and seven hundred gallons of juice. This quantity if properly manufactured, will make at least five hundred pounds of sugar and fifty gallons of molasses. The estimate then for one acre will stand thus:

	Dr.
To ploughing and harrowing,	$2 50
2 bushels of seed and boiling,	2 00
Cultivating,	4 00
Taking off ears,	5 00
Cutting up, grinding, saving fodder, &c.	17 50
Wood,	5 00
	$36 00
	Cr.
By 3 tons fodder, at $12 per ton,	$36 00
500 lbs. sugar, at 6 cents,	30 00
50 gals. molasses at 30 cents,	15 00
Stalks after grinding,	4 00
Ears taken off,	1 00
	$86 00
	36 00
Balance,	$50 00

Our operations, the present season, are not yet sufficiently matured to furnish any further observations.

I am respectfully yours,
WILLIAM WEBB.

FERTILITY OF SEA-MUD.

Sea-mud varies greatly in its composition, dependant something on the soil upon the neighboring uplands. It is considered a valuable manure in Europe, and is sought for with avidity, and transported not unfrequently considerable distances into the interior. We have seen it used with good effect in the United States, from Massachusetts to Pennsylvania; and are told that even in Delaware and Maryland, and even father south, it is highly prized by those who have tried it. On long Island, the past summer, we were occasionally shown the fertilizing results, not only of sea-mud, but of the marsh soil also, applied to the uplands a little removed from the borders of the marshes and the sea-shore. Our intelligent correspondent, Mr. Partride, informs us that he has used beach mud in various ways with good effect; and that the past summer two gentleman whose country seats border his mill, were allowed to make use of the sediment from the tide-mill pond, and they found it added greatly to the productiveness of their gardens.

Sea-mud may be applied in different ways, according to its constituents. If it abounds with clay, it should be taken in the fall of the year, and spread broad-cast upon the land, and thus lie

exposed to the action of the frost all winter. This pulverizes it well, and in the spring of the year the roller should be passed over it in dry weather, followed by the harrow, and if any lumps remain after this operation, let them be beaten fine with the dung-beater. This is considered one of the best top dressings for grass lands that can be given; it also answers well to be ploughed in for either grain or root crops.—Where the mud abounds more with sand, it is an excellent thing to put into barn-yards and pig-styes, to be incorporated with the litter and manure; it may likewise be thrown into a heap until it becomes completely pulverized, and then spread upon the land.

As air slacked lime or small broken lime can be obtained in this city for about half the price of quick lime, Mr. Partridge suggests it would be an excellent ingredient to mix with the sea-mud, for the purpose of forming a compost. A bushel or two of the lime to a cart-load of mud, he thinks a good mixture. When it abounds with considerable vegetable matter, we should recommend a greater proportion of lime, say from one to ten to twenty parts. Ashes and charcoal dust are excellent ingredients to mix with sea-mud, and when either of these or lime is used to form a compost, they make it much more lasting. It is less labor to transport the sea-mud directly to the place where it is to be used, and spread it broad-cast upon the land; and as the saving of labor is quite an object in our country, we have found that this method of applying it is the most generally practised.

With the exception of a few of our more intelligent farmers, sea-mud and marsh-mud as fertilizers, are not valued as highly as they ought to be in the United States. They exist in immense quantities all along our sea-board, and may be had in an unlimited extent for the mere labor of transportation. We hope that some experiments may hereafter be made with them by some of our readers on the different kinds of crops, and that they will give us the results. The time we think, is approaching, when sea-mud and marsh-soil will be as highly prized here as they now are in Europe. [*American Agriculturist.*

From the Albany Cultivator.

LETTER OF MR. ELLSWORTH—BOMMER'S PATENT.

We invite the attention of our readers to the annexed letter of the Hon. Mr. Ellsworth, chief of the Patent office at Washington, on the subject of patents, and the claims of Mr. Bommer in particular. There is no object in the whole range of agriculture, of more interest to the farmer, than that of manures; and any improvement in its manufacture, by which its quantity and quality may be increased, will be received by them with favor. That manures made

in the way recommended by Mr. Bommer, or according to the patent claimed by him, are of superior quality, no one acquainted with that method can doubt. But if, as Mr. Ellsworth seems inclined to suppose, it is only the French method, with some unimportant additions, so far as the making of the manure, or its quality is concerned, that method should be generally known, that all may avail themselves of its advantages, and we thank Mr. Ellsworth for enabling us to give the specifications to place in the Cultivator. We have given the large pamphlet, just published by Mr. Bommer, and contaning an ample account of his method and its advantages, a copy of which he has kindly placed in our hands, an attentive perusal, and can safely say there are few if any publications on the subject there discussed, whatever may be their pretensions, which combine such a mass of practical instruction on the preparation and use of manures. Of the legality of the patent under which he is acting, we do not express an opinion; but we know that the method used by him, and described in the pamphlet, a copy of which is furnished every purchaser of a right, will make manure in any quantity, and of the best quality for almost every kind of cultivated crop. Of the French method as described in the specifications, we are not competent to judge, having never witnessed its effects; we should, however, prefer purchasing Mr. B.'s book, in which the whole process is detailed.

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LETTER FROM MR. ELLSWORTH.

Washington City, Patent Office, Nov. 3, 1843.

Messrs. Gaylord & Tucker,—I noticed in your last number of the Cultivator, just at hand, a particular notice of Bommer's process, —also his advertisement announcing "Bommer's manure method, secured by letters patent," and referring to "documents recorded in the patent office," to prove his rights. This advertisement has greatly increased the burden of answering requests for copies of "Bommer's Patent." Whilst I have studiously avoided expressing an opinion on cases pending or decided, yet as special reference is now made to the bureau to sustain the advertisements, and fearing that the public may be misled by my silence, I hasten to state the facts as they appear of record. Mr. Bommer, on the 12th of May, 1843, presented an application for a patent for making manure. This application was duly examined, and rejected for want of novelty. No appeal was taken. The application was withdrawn, and $20, the usual sum allowed on withdrawals, paid to Mr. Bommer on the 6th of July last. No other application has been made by Mr. Bommer for a patent for similar purposes.* It may not be improper to state that Messrs. Baer & Gouliart, in

* Mr. Bommer informs us that on finding his own claim rejected, he was induced to make an arrangement with Baer & Gouliart, by whom his claim was again presented, and the patent secured in their names—Eds. CULTIVATOR.

June, 1843, obtained a patent for an alleged improvement on the method of making manure, patented in France by Jauffret, which said method, however, has not been patented in the United States, and is therefore free to the public. How far the public are restricted in the use of foreign inventions, may be ascertained by referring to the claim of the American patent, which, you will perceive, is restricted to the preparation of the *heap* and the mode of *applying* the lye to the same; the *ingredients*—in other words, the *lye itself*, not being claimed. That no injustice may be done to the parties concerned, I send you a copy of the American patent, and only add that Mr. Bommer has become an assignee for several states, under this last mentioned patent.

Yours, &c.

H. L. ELLSWORTH.

COPY OF BEAR AND GOUILART'S PATENT.

To all whom it may concern: Be it known, that we Charles Baer and John Gouliart, of the city of Baltimore, in the state of Maryland, have invented certain new and useful improvements in the manner of making manure, which has been for many years practiced in France, and has been there secured by Letters Patent under the name of "La Methode Jauffret," and we do hereby declare that the following is a full and exact description thereof.

In the method of Mr. Jauffret, a pit or reservoir is prepared of sufficient size to contain the quantity of prepared lye which may be required by the nature of the establishment. This resevoir or vat is intended to be a receptacle of water saturated with decomposed animal and vegetable matters, and is further to receive the ingredients hereinafter named; such water is to be found on nearly every farm, and it may be augmented by the draining of stables, by dish water, suds, and other substances of a like nature.

Mr. Jauffret, however, finally prepares his lye, by which the fermentation of the articles to be converted into manure is to be promoted, in the following manner, under various modifications.

For the conversion of from one to two thousand pounds of vegetable matter into manure, he takes about

200	lbs.	of night soil,
200	"	calcined plaster in powder,
50	"	wood soot,
20	"	wood ashes unleached,
60	"	quick lime,
1	"	common salt,
1	"	rough saltpetre,
150	"	lye or ferment drainings from a Jauffret manure heap.

These ingredients are in many cases to be replaced by others; this lye to be prepared 10 or 15 days before use. The quantity of

materials above named, for the conversion of from 1 to 2,000 lbs. of straw or other dry vegetable stalks, will answer for about double that quantity of green vegetable matter.

In using this lye, the plan of Mr Jauffret is to steep in it the vegetable fibres, which are to be acted upon by throwing them into the vat or resevoir containing it, and removing it thence at great labor so as to form a high heap in the vicinity of the vat, into which the drainings are allowed to run.

We have thus given a brief outline of the method of Mr. Jauffret, the same appearing necessary to the understanding of our improvements, which consist in our omitting altogether the excessive labor of steeping the materials to be acted upon in the lye, and elevating them from thence to the heap; and also in the preparation of a lye, which is equally effective with that of Jauffret, at much less cost, and which can be used immediately on its being made, thereby saving the delay of 10 or 15 days which "La methode Jauffret."

We prepare a resevoir to contain the lye as usual, and in the immediate vicinity of this, we make our stacks or heaps of vegetable matter, which is to be converted into manure.

We give to the ground, where the heap or pile is to be made, an inclination towards the vat; if the ground is a firm clay, it may be merely sloped, and have shallow trenches dug on its surface to conduct the drainings back into the vat; or it may have a flooring of timber, brick or stone, as may be preferred, which may be so trenched as to conduct the whole towards a central drain. When our platform or flooring is of clay, we cover the trenches and whole surface of it with brushwood or rails, so as to form a temporary grating that will support the weight of the heap, and thus insure a drainage, and the admission of air to the heap from below.

The materials to be converted into manure, we pile up on this prepared platform immediately as it is delivered by the carts, and this we sometimes continue to do until the heap has attained the whole height to be given to it, when by the use of a pump, buckets, or other suitable means, we raise the lye from the vat and pour it on to the heap, continuing so to do until the whole mass is saturated; we in general, however, raise the heap to a height of two, three, or four feet, more or less, and then pour on a portion of lye, repeating this as the height of the pile is increased; this procedure obviates the necessity of lifting the whole of the lye to the full height of the heap.

The materials which we employ in making the lye, may be limited to the following, namely: cow, horse or hog's dung, or night soil, the urine draining from stables, and quick lime. The ingredients used to be intimately mixed with a sufficient quantity of saturated water.

Two of the kinds of animal dung we have found to answer as well as a larger number. A perfectly good lye will be made by

taking one barrel each of two of the species of dung, two of the urinary drainings, one of quick lime, and about 50 barrels of saturated water which is then to be used as above explained.

What we claim as our improvement on Jauffret's method of forming manure by the rapid fermentation of vegetable fibres, is, first, the forming of the said vegetable matter into piles or heaps, without its being first immersed in the prepared lye, and the subsequently saturating the same by the pouring on the lye in the manner set forth.

Witnesses
Th. M. Abbet,
J. R. Abbett.

CHARLES BAER,
JOHN GOULIART.
(Patented June 24, 1843.)

From Foote's Prize Essay.

APPLYING MANURES TO THE SURFACE.

Whether putrescent manures should ever be applied to the surface of the soil, is a question on whith the opinions of distinguished agriculturists are far from being unanimous. The right decision of the question depends, in our view, upon the following circumstances. 1. The condition of the manure to be applied. 2. The character of the soil for which it is intended. 3. The nature of the crop to be benefited by it. 4. The time of the year when the manure is to be carried out.

1. If the manure to be applied has been composted, or if the process of fermentation has already spent its force upon it, there can be no serious objection to its being spread upon the surface; since, the gaseous exhalations having already escaped, it is chiefly secured against the ravages of the atmosphere; and from infiltration there is nothing to fear, as that is the very process best adapted to bring the decomposed particles in contact with the mouths of the plants which are to feed upon it.

2. If the soil for which the manure is intended, be very porous to a considerable depth, the nearer the surface the manure can be deposited, without too much exposure to the atmosphere, the better, it being evident that the nutritive juices will soon descend beyond the reach of the plants, if it be in the first place buried too deep.

3. If the crop to be benefited consist of any of the finer grains or grasses, the application of the manure to the surface (harrowed in, in the case of grain,) will have a greater *present* effect than any other mode of application, as the roots, that is, the mouths of the plants, lying close to the surface, will have the readier access to their food. That natural meadow land can thus be made to yield a greater burden of grass than by any other means, scarcely admits of a doubt.

4. If the manure to be applied is summer-made manure, which must be carted out in the fall, this mode of application will have another argument in its favor. By being spread at this season of the year, after the heats of summer are past, the fermentation and evaporation will be but slight, and the rains and snows which may be expected to fall upon it in succeeding months, will either wash it into the soil, or so imbed it among the roots of the growing crop, as quite effectually to shield it from the wasting action of the atmosphere the succeeding season.

One thought more upon this subject. With the relations of plants to the atmosphere as a source of nutriment, we are as yet much less acquainted than with those which they sustain to the soil; an agricultural science, in its onward progress, may yet develope the fact, that manures applied to the surface, by exerting a direct and powerful agency upon the leaves of plants, and thus promoting an increased absorption of the nutritive particles of the atmosphere, may prove more beneficial, especially in the case of grasses and the finer grains, notwithstanding the losses they sustain from evaporation, than they would if buried beneath any portion of the soil.

POUDRETTE.

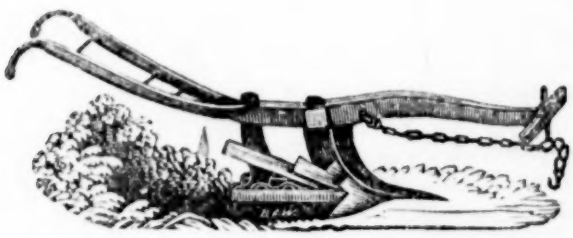
The expediency of using any of the compositions which are sold for manure, depends on circumstances which the farmer should always consider. Mr. Breck, of the N. E. Farmer, says he has used within the last two years, 75 to 100 barrels of poudrette. He says that where good stable dung can be had at three dollars per cord, it is no object to buy poudrette at present prices. He does not hesitate to say that it is excellent for corn, *provided* about half the usual quantity of green manure is ploughed in the spring, and the corn planted on the poudrette. The corn takes a vigorous start, and before the virtue of the poudrette is exhausted, the decomposition of the green manure begins to take place, and affords nourishment for the numerous roots which are greatly multiplied by the action of the poudrette. If the ground is not in good heart, Mr. B. says the action of the poudrette alone is not sufficient to mature a good crop, although it may give a very flattering appearance in the *first* part of the season. [*Albany Cultivator.*

RESULTS OF SUBSOIL PLOUGHING.

Mr. C. N. Bement states that a few year ago, he subsoiled part of a piece of ground which he planted to Indian corn. The piece was on a light, loamy or sandy knoll, and he subsoiled it in "strips,"

leaving alternate strips not subsoiled, all being manured alike. He ran the *subsoiler* about eight to ten inches deep. The season proved very dry, and where the subsoil plough was *not* used, the corn was so burnt up that it produced little or nothing; but where the subsoil plough was used, the corn remained green and flourishing through all the drouth—the strips were plainly seen at a distance, and the subsoiled part produced a good crop.

Mr. B. made a similar experiment on carrots, and the results were even more strikingly in favor of subsoiling than in the case first cited. [*Albany Cultivator.*



RUGGLES, NOURSE & MASON'S SUB SOIL PLOUGH.

Messrs. Editors,—We take the liberty to forward you a cut of the sub-soil plough, as now made by us. This plough is generally used to follow in the furrow of the common plough, breaking and crumbling the sub-soil to any desirable depth, by raising it gradually upon the incline plane, and dropping it again in its place, which allows roots to penetrate deeper, and in very retentive soils, or in wet seasons, the surplus waters will readily pass downwards, and on lands where vegetation is likely to suffer from drouth, by thus loosening the sub-soil admits the natural moisture to ascend and become useful to vegetation.

In——, at the suggestion of many eminent farmers, we imported from Edinburg in Scotland, one of Smith's Deanston sub-soil ploughs, at an expense of $80—that being the kind most approved and used in England and Scotland. That we believe to be the only plough of the kind ever brought to this country. It was made wholly of iron except the upper end of the handles, and being very long, heavy and complicated in its construction, it was expensive much beyond what the agriculturists of our country would believe necessary, or think they could generally afford. Since that time, we have been testing their operation and utility, through the farmers in different sections of the country, and find their effects to be most beneficial, equal even to the expectations of the most sanguine—and the demand fast increasing. We have so modified and simplified its construction, yet retaining all the principles and adding some important improvements, that we afford a plough for

$15, that is capable of doing the same and as good work as the original, and with the improvements, they are better adapted to be used in different soils requiring different depths. They were originally intended only to follow the common plough, but as made by us they have been successfully used in grass lands without first using the common plough, breaking the sub-soil without turning up the sward, and without disturbing it more than was beneficial.

RUGGLES, NOURSE & MASON.

For sale by J. D. Legare, 81 East-Bay, Charleston.

DESCRIPTION OF A NEW AND IMPROVED COTTON-GIN,

Constructed by F. McCarthy of Alabama.

Taken from Seabrook's Memoir on the Cotton Plant.

"To an iron frame, 4 feet breast and 3 feet high, is attached in front, in a horizontal position, a 2 inch roller, covered with the best kind of sole-leather, grooved, (say 1-16th of an inch deep,) diagonally—the grooves being an inch apart. Pressing lightly against this roller, from the centre upwards, and confined to its place by small steel clamps, is a very thin steel plate, made perfectly smooth and bevilled on the under side, which comes in contact with the roller. On each end of this roller is a pulley, connected with other pullies by bands. The cotton is placed on a feeding board, and drawn in by the action of the roller between it and the plate the entire length of the fibre, (the seed exposed and resting against the plate,) where it is held firmly. In the mean time a vibrator (which is a plate of iron, 2 inches broad with square notchs in the upper edge, and screwed to a piece of wood to support it,) attached to 2 upright pieces of wood an inch square, which are attached to each end of an iron shaft, ($1\frac{1}{2}$ inches in diameter and placed in a horizontal position,) by means of sliding cranks, which give an eccentric motion, and cause it (the vibrator) to play up and down with great velocity, just clearing the plate; pushing the seeds upwards; clearing the cotton, which, thus relieved, passes on (the leather or ginning roller being cleared by a smaller one resting on it, and lying just behind the plate) to an end less apron, 8 inches broad, which is made to revolve on 2 rollers of $1\frac{1}{2}$ inches diameter, and which is placed in close proximity to the ginning roller. The cleaning roller passes the cotton under another roller ($1\frac{1}{4}$ inch diameter) to the apron, around which it adheres, and by this process the fibre is straightened.

"The apron is cleared, after thirty revolutions, by means of a cam, which is placed over the apron, near the back part of the gin; the edge of this cam is made to come regularly down to the apron by a finger attached to one end of it: a racket wheel throws this finger under a segment of a circle, attached to the pulley which drives the ginning roller, and thus holds the cam to the apron during one revolution; the edge of the cam is then brought clear of the apron by weights and the cotton falls to the floor in a bat.

"The above is the plan of the gin as first exhibited. I have since simplified it somewhat by taking off the apron, cam, &c., and substituted 4 rollers in their place—placing them immediately back of the ginning and clearing rollers, through which the cotton passes and falls in flakes on the floor."—*Extracts of a letter from H. W. Fargo of Savannah, Mr. M'Carthy's agent for Georgia, to the writer. The price of a single gin is* $150.

Communicated for the Southern Agriculturist.

ON THE COTTON GIN, AND INTRODUCTION OF COTTON.

Answers to queries of the Hon. W. B. Seabrook of Edisto, S. C. by Thos. Spalding, Esq. of Sapelo, Geo.

Sapelo Island, Jan. 20th 1343.

Dear Sir Your letter of the 10th instant was received two days ago, and I was gratified at the communication, as I have long wished to be personally acquainted with some of the gentleman of your immediate district; your pursuits, your habits, and your opinions, appearing to be in accordance with my own; and nothing but the continued pressure of a painful disease, of now ten years standing, has prevented me carrying out my desire, by visiting you.

I will now proceed to answer your queries, in the order in which they are placed; only begging you to remember, if you notice any indistinctness in my answers, that I have only a few days since recovered from a very severe illness, which prostrated both body and mind.

1st. Eve's Gin was invented by Joseph Eve, who lately died at Augusta, somewhere about the year 1790, in the Bahama Islands, where Mr. Eve then resided.

Mr. Eve was the son of a Loyalist from Pennsylvania, who had been the friend of Franklin; and Jos. Eve, was himself qualified to have been the associate, and companion of Franklin, or any other; the most enlightened man I have ever known. His Gin consists of two pair of rollers, more than three feet long, placed the one set over the other, upon a solid frame that stands upon the floor, inclined at an angle of about thirty degrees——so that the feeder may the more easily throw the cotton in the seed by the handful upon a wire grating that projects two inches in advance of the rollers, just below them; between these projecting wires, the feeding

boards, with strong iron, or in preference, brass teeth pass, lifting the cotton from the wire grating, and offering it to the revolving rollers. The feeders should make one revolution to every four revolutions of the rollers. The rollers are carried forward by wheels supported over the Gin, and upon the axle, or shaft of these rollers; at the centre, there is a crank, similar to a saw-mill crank, the diameter of whose revolvement, is as one to four, of the diameter of the wheels carrying by bands the rollers.

It is the crimping produced by the teeth and the wire grating, which has served as a cause for carping by the cotton-buyers, and which has gradually led to the disuse of these Gins, the only Gin efficient for the cleaning of long cotton, which has ever been used in this or any other country. With Mr. Eave's Gin as originally sent to this country from the Bahamas, the rollers were $\frac{5}{8}$ of an inch in diameter, made of stoper-wood, a very hard and tough wood, and they were graduated to make 480 to 500 revolutions per minute, depending of course, upon the gait of the horses or mules, within these limits. Soon after Mr. Eve first sent his gins to Georgia, some of his own workmen followed them, and began to make them on their own account. To show as much change as possible in the Gins, beside the other alterations, they increased the size of the roller to $\frac{3}{4}$ of an inch, and increased its velocity to six hundred times in the minute. These two changes while it greatly increased the quantity ginned, very much injured the appearance of the ginned cotton. Mr. Eve had expected and guaranteed to the purchasers of his gins when well attended, in fine weather, from 250 to 300 lbs. of cotton in the day. I have known these altered gins, do sometimes six hundred, but the injury was greater than the increased quantity warranted, add to which the quicker movement of the feeder made the more impression upon the cotton in passing from the feeder to the roller.

2d. The first bale of Sea-Island cotton that was ever produced in Georgia, was grown by Alexander Bisset, Esq. of St. Simons' Island, and I think in the year 1778. In the winter of 1785 and 1786, I know of three parcels of cotton seed being sent from the Bahamas, by gentleman of rank there, to their friends in Georgia; Col. Kelsall sent to my father a small box of cotton-seed; the surveyor Genl. of the Bahamas, Col. Tatnall, sent to his son, afterwards

Govenor Tatnall of Georgia, a parcel of cotton-seed; Alexander Bissett's father, who was commissary Genl. to the Southern British Army sent a box of cotton seed to his son, in the year 1786; this cotton gave no fruit, but the winter being moderate and the land new and warm, both my father and Mr. Bissett had seed from the ratoon, and the plant became acclimatized. In the year 1788, both Mr. Bissett and my father extended the growth, but upon my memory it rests, that Mr. Bisset was the first that found the means of separating the seed from the cotton, by the simple process of a bench upon which rose a frame supporting two short rollers, revolving in opposite directions, and each turned by a black boy or girl, and giving as the result of the day's work five lbs. of clean cotton. What disposition Mr. Bissett made of his cotton I know not, but as he was a sensible man, and his father had returned to England, I think it more than probable that he shipped it there.

3d. When cotton was first grown it was planted upon the flat land at five——apart, it was quite too thin, and although the plant grew generally well, the product rarely reached one hundred lbs. per acre, and at four acres to the hand, gave about four hundred to the laborer.

My father died in the year 1794, leaving me some property at St. Simons' Island, a gentleman who had been his friend, came for his health, to spend the winter of that year in Georgia, he gave his advice freely to all he saw, that were growing cotton; I was young, he had been the friend of my father, I listened to his advice, left 8 10 plants where one had grown; and made off a small field of sixty acres, 340 lbs to the acre. The revolution was accomplished and the crops greatly increased.

4th. No manure was used for many years in the culture of cotton, persons depending upon the in field, and the out, or the alternate cultivation of the field, which was soon found necessary. The first suggestion of manure upon a large scale to cotton, came from Col. Shubrick, of South-Carolina, who recommended in some Essays in the papers, the application of the drifted reck, that is thrown up by the tides. After the hurricane of 1804, I bestowed a great deal of labor in spreading this reck between my cotton rows over several hundred acres; whether the sea had left too much salt, or whether there was too much in the material itself, I know not, but I neither

then, nor afterwards, experienced much benefit from the application.

5th. The plough was but little used for any purpose at St. Simons; it takes many years before the Palmetto, and the collateral roots of the Live Oak, make hammock land free to the plough. Major Butler did use the plough with mules for both purposes.

6th. The cotton was generally worked four times, we soon found that our working should cease, as soon as the rains became heavy, say at the middle or end of July.

7th. The ridges were renewed every year, or every other year, whenever the field was planted in cotton; they were originally low, and rather small, they were increased in height and breadth, according to different opinions of men.

From the year 1798 to 1802, the St. Simons' cultivation had assumed a regular form, and was in my opinion, good; twenty-one rows to the 105 feet, the ridges occupying the entire space, large but full and flat upon the top. The cotton seed drilled, and the plants thinned, from six to ten inches apart, dependant upon the expected growth of the plant. Major Butler, and Messrs. Couper & Hamilton who cultivated extensively near me, were in the habit of topping the cotton in August, to retain, as they supposed its fruit. I was in the habit of taking off the top of the plant, when the cotton was from 15 to 18 inches high, to make it branch and give a better head.

Twenty years ago, upon purchasing some river-land, opposite to Savannah, I adopted permanent ridges, planting a row of corn, and a row of cotton alternately, these ridges had stood nine years, when my son sold the plantation, giving, as I think, the best cotton, and the best corn crops in Chatham county. And this course, I consider the nearest approach to Flemish Husbandry, I have known in Georgia; because although the corn, and the cotton, changed alternately from ridge to ridge, the entire field was kept in full culture, preventing the growth of grass and noxious weeds.

8th. Accounts were kept in pounds, shillings, and pence, in those times, cotton brought at first 14*d.* sterling, but rose gradually in about four or five years to two shillings, at which it stood, until the unfortunate dabbling with commerce, commenced in the year 1806. The first non-importation act, passed in that year, and none more

active in its adoption, than our southern men. There were but five men, south of the Potomac, who voted against it, Randolph, J. M. Garnett, Thomson of Virginia, Stanford of North-Carolina, and myself from Georgia. From that day to this, the agriculture and commerce of the country has been at the mercy of speculators.

9th. Care was taken for many years, as much as possible to separate the seed, carrying any fur from the black seed, intended for planting.

10th. The St. Simons' cotton stood first, and Maj. Butler's and my own first among them. From the character of the tradesmen attending his gins, or the greater strictness of his manager, his cotton soon took a preference, which it preserved for some years. The staple of the St. Simons' cotton, was thought better than any other; the putting up of Maj. Butler's cotton placed it at the hands of others.

11th. The bags were packed as now with the pestle, I never knew the screw used for long staple cotton but at Mr. Hamilton's plantation, and it was soon given up.

12th. The green seed cotton, was for some years packed with the pestle, in fact I remember to have heard objections made to the screw, and square bales, at their first introduction.

13th. Negroes were worked in task-work, in Carolina, and Georgia upon the sea-coast, from my earliest recollection. The task in listing; the fields being previously cleaned up, and the remains of the former year burned off, was half an acre; the laborer was required to ridge afterwards, when carefully done, $\frac{3}{8}$ths. of an acre; and in hoeing, half an acre was the task, depending however, much upon the season and the condition of the field.

14th. The bags generally were expected to weigh 300 lbs. Maj. Butler's were $4\frac{1}{4}$ yards and contained 260 lbs.

15th. The rust did not appear for some years in our fields, and when it did, I attributed it to listing in green vegetable matter in the latter summer, for the next year's crop; or coarse vegetable matter in the winter, instead of burning off, which left a light top dressing of ashes. The caterpillars made their appearance I think, for the first time, in 1793, and destroyed the crop. I remember Maj. Butler made but 18 bales of cotton from 400 acres. There was also a red bug, a winged insect, with a long proboscis, with

which it pierced the green pods, extracting the juices of the seed and leaving the pod blighted and hard, and the cotton stained of a deep yellow or red color. In new lands this insect was very destructive, as it had been in the Bahamas, and as it found protection against the cold in the bark and roots of the trees, it was apt to remain for years injuring the quality and reducing the quantity of the cotton.

16th. The caterpillar was first seen to do injury as I think in 1793, the injury was unsual, the destruction complete, so as scarcely to leave seed. The destructive caterpillar, is not the same that feeds upon the Indigo; the green caterpillar I have frequently known to riddle the leaves, to a great extent, without great ultimate injury, but it is the black and yellow striped caterpillar, that in a few days, say from four to five, will spread over hundreds of acres, not leaving a green leaf, and finally, nothing but the full grown pods, which they sometimes break and injure.

17th. The black seed cotton had been shipped for several years, before they began to grow in the interior the green seed for sale.

I remain, dear sir, respectfully,

Your ob't, serv't.

THOMAS SPALDING.

For the Southern Agriculturist.

MR. RUFFIN'S REPORT OF HIS AGRICULTURAL SURVEY DURING THE YEAR 1843, IN SOUTH-CAROLINA.

This report has been read by me, with much interest and improvement; how much more then would it interest the many excellent planters and well informed country gentlemen, who can much better understand and appreciate his numerous recommendations and suggestions.

It is much to be regretted, that this valuable document should have lain dorment in Columbia, during the three months of the year, most important to a planter for maturing his plans and arranging his agricultural operations for the ensuing season. It should have been printed during the Session or before it, so that every member of the Legislature—every member of the bar, of the bench, and of the pulpit—every visitor of Columbia from the various

portions of our State, might have procured a copy, for his own private study and consideration. Every gentleman so supplied, would have heard and reflected on the observations interchanged between judicious practical farmers, travellers who had seen, and readers who had learned the many benefits enjoyed where marling and other improvements had been adopted in agriculture. Such discussions would have rivetted the attention of many, who otherwise might not have read the Report, or considered what it was about, or what could be the good of it. Let them still take it and select each for himself, the many practical, judicious lessons, that he may consider applicable to his own field—the health of his family and negroes,—the increased produce of his crops,—and the permanence of that increase, compared with the transient benefits from the manure, which he every year continued with commendable industry to spread over impoverished fields, and he will make up his mind to practice the recommendations of Mr. Ruffin, in particulars which cost so little.

The leading recommendations are few and simple.

1st. That our level country in particular should be better ditched and drained.

2d. That no field should be year after year, cultivated in the same crop, but be left to rest or be planted in rotation, with peas, corn, cotton, rye, oats, or wheat and potatoes.

3d. That marl be added where every good planter has spread his usual collection of manure, for the purpose of rendering it better adapted to the nourishment of his crop, increasing the quantity produced, and rendering that increased product permanent and progressive.

4th. That no soil can be productive in which there is not a sufficiency of vegetable matter, to nourish the grain and cotton crop cultivated, and that no manure can make it so, unless well intermixed with vegetable matters. Vegetation requires nourishment from vegetable substances; putrefaction and animal mixtures, and marl or lime, adapt it more readily and completely, for being taken up as nourishment, and stimulate the plants to absorb it as such.

That some plants, however, as peas and sweet potatoes, receive their nourishment mostly by absorption from the atmosphere, and do not exhaust the soil, but rather add to its strength, by the additions

from their vines, leaves &c. Nature also provides for the restoration of soils if they be suffered to rest, for then a spontaneous growth of weeds and grass springs up, which like the vines, derive most of their sustenance from the surrounding air, and leave their roots, stocks and leaves, to refresh the exhausted land.

Without such natural growth, or the additions of straw, pine-trash, leaves and stubble, made by industry observation and experience, the fields would soon be exhausted, and the "laborer labor in vain." Without such vegetable additions to the soil, even marl and lime can do no good to the crop. These powerful agents act chiefly by rendering other manures efficient and permanent—their strength then remains in the soil, and is not evaporated or washed away.

Although they *chiefly* act in this way, it is not pretended that this is the only way, in which benefit is rendered to the soil. All know that in our light sandy lands, the rain is absorbed as fast as it falls, filters through the land and washes away with it, all the manure and other riches of the soil. Marl and lime stiffen the soil, give it a body and resemblance to the best of lands; they, like clay, absorb the moisture that would otherwise run off, carrying with it the manure, and like clay, they gradually impart that moisture for the nourishment of the crop. Marl and lime do also what clay has not the power to do; they dissolve the manure, reduce it to the best possible state for nourishing the plants, and give those plants the healthy power of taking up that nourishment, for their maturity of their fruit, and increased quantity of the crop.

The soil of our State, is peculiarly that which receives most benefit from marl and lime. All writers agree that it is most beneficial on what are called "sour-lands" such as those which produce ferns, sheep-sorrel, red sorrel or docks, dandelion, mosses and pines.—Such is the soil of all the low country, from the falls of the rivers to the sea-shore, and here has Providence been peculiarly bountiful, in distributing the immense supplies of the richest marl ever found in any part of the world—the most easily found—the most easily obtained—the most easily conveyed from its bed, to the contemplated field for improvement.

We will give some extracts from the report in our future numbers.

D. H. Hatton, in the Southern Planter, says that irreparable injury is done to corn by cutting off the suckers, as the produce of fodder and grain are both diminished.

From the South Western Farmer.

THE COTTON PLANT.—ITS NATURE.

Mr. Editor: I proposed in my last paper, to give my reasons for consulting the length of the limbs of the cotton plant, in the apportionment of space between the stalks rather than the roots. I will now attempt to comply, but I cannot even hope that you will find them interesting. If I fail, just cast them under your table. They are these: because the cotton tree, as it is called by some, or plant by others, seems to me to depend more upon its foliage for its nutriment of support and growth, than almost any other shrub or plant with which we are acquainted. I am led to this opinion by the superabundant foliage of the plant. It is agreed on all hands, I believe, that the leaves of plants perform important functions in the development of the plant in its growth through all its stages, from its germination to maturity. If so, and I believe it, then the great abundance of its foliage serves to promote the growth of the plant by its greater facility of abstracting from the atmosphere the amount of support required through that channel, which of course is proportioned to the amount of foliage. This view seems to be sustained by the fact that there exists a greater disproportion between the root and the foliage of the cotton plant, than any other species of vegetation of equally early maturity.

All who have observed the cotton plant, have doubtless been surprised to find the largest stalks to have least hold upon or in the ground, and the very inconsiderable root which has been required for its support, not sufficient it would seem for the support of one of its branches. The smallest boy can pluck it from the ground with ease, and yet will hardly be able to carry it to the heap. Now, in the development and growth of the corn stalk, the very reverse is true. There the great amount of roots indicates equally clear that that plant is almost wholly supported by its roots from the earth. It is a known fact that the whole ground of a corn-field becomes almost a perfect mat of roots, and so interlocked and strong that the last ploughing is attended with a cracking noise—the breaking of those roots discernible at a considerable distance from the ploughman, and I have heard old planters say that they have seen corn roots from twelve to fifteen feet long. Another fact seems to support my view: the growth of cotton at the start, at which time it is wholly dependent upon the root, is accordingly slow, and the growth is not rapid until its foliage begins to expand into abundance; when it begins to speed upward with great rapidity, and the rows, which but a few days ago admitted the plough without damage, are now closed and even interlocked. This is not the case with corn; for while the ground is filled with moisture in the early spring, abundant nourishment for corn, the plant living by its roots, takes it up

freely through the superabundant roots, and ere the season arrives for the growth of cotton, corn has attained the height of several feet, and is begining to develope its fruit. I have taken corn into the comparison because it affords the most familiar example, and at the same time the most striking and easy of observation.

Now, then, if the object were to consult the dimension of the roots in spacing cotton to a stand, which probably has been the case heretofore, we would so arrange it that the roots would occupy all the ground; but every one knows that this defeats the object of growing cotton. Then we must resort to some other criterion by which to be governed in the adjustment of the stand, and to the length of the limbs. I look with perfect confidence for the best criterion, and that it must be so spaced that the limbs will not interfere with the growth of each other. This affords free ventilation by air and light, which prevents that accumulation of damp mould always met with in crowded cotton. It prevents rot of every sort, and the too great division of the means of support furnished by the earth and atmosphere. Now, if my views are correct, they serve to explain the fact why cotton attains greater size in damp situations of humid atmospheres, without proportional advantages of soil, than it does in dry ones.

I have frequently speculated upon the nature of cotton, (to be sure without much light upon the subject—a matter of serious regret with me;) in all of which speculations, I have come to the conclusion that the cotton plant is more akin in its characteristics to the tree, than to any other of the vegetable kingdom; and my observations upon both (the cotton plant and trees) induce me to believe that the crop of cotton is more abundant always when there is space sufficient to allow of great expansion in the limbs, as the tree is more capacious, more expanded, and a more abundant bearer, where there is room sufficient. In confirmation of this position, go into an orchard of peach or apples, and you invariably find the best fruit and greatest abundance upon those trees which stand apart, with ample room to spread their branches out; and those trees which are crowded are found to have their little crop damaged by blast, mildew and worms; and the balance of small size, even of fruit that would be large in favorable situations—it is equally so of cotton. I have known the most abundant crops of cotton made on stands that were not at the start deemed more than half sufficient. Then I would take the expansion of the limbs towards each other between the rows, as the rule for distance in the drill, because in crowded cotton there are but two sides of the stalks that branch, those towards the rows making the stalk, when grown, in the shape of a fan; and it is attended with less labor in the cultivation, to allow room enough for the cotton to assume the shape of the cone—and to say the least for it, it produces as much fruit or crop. Then, improve upon the ordinary method of spacing cotton, by adjusting the distance to the length of the limbs your ground will bear.

Very respectfully, your friend, A PLOUGHMAN.

From the American Farmer.

DESTRUCTION OF INSECTS BY ARTIFICIAL MEANS.

The following is an extract from an article in the British Farmers' Magazine, by C. W. Johnson.

Various have been the successful recipes suggested for the destruction of the insects which destroy the cultivator's crops: thus *ants*, it is said, may be easily destroyed by toasting the fleshy side of the outside skin of a piece of bacon till it is crisp, and laying it at the root, or stem, or any fruit tree that is infected by these insects—put something over the bacon to keep it dry; the ants will go under; after a time lift it up *quickly* and *dip* it into a pail of water. For the destruction of slugs, warm in an oven, or before the fire, a quantity of cabbage leaves until they are soft, then rub them with unsalted butter, or any kind of fresh dripping, and lay them in the places infected by slug. In a few hours the leaves will be found covered with snails and slugs; this plan has been successfully tried by Mr. Loudon at Bayswater. Earwigs and woodlice are destroyed in the same way. For field operations, perhaps, the best means of destroying slugs and worms is common salt, an agent too little known for this purpose, yet its powers are undoubted.

No person has employed common salt for the purpose of destroying worms, to a greater extent than Jacob Busk, Esq., of Ponsbourn Park, in Hertfordshire. His valuable experiments extended over some hundreds of acres of wheat. To use his own words—"In every situation, and at every time, the effect appeared equally beneficial." The quantity per acre—"about four or five bushels sown out of a common seed shuttle." The period—"In the evening." The effect—"In the morning each throw may be distinguished by the quantity of slime and number of dead slugs lying on the ground. In some fields it has certainly been the means of preventing the destruction of the whole crop." Six bushels of salt per acre were applied by hand, in April, 1828, to a field of oats attacked by the slugs and worms, on the farm of Mr. John Slater of Draycote, near Oxford. The crop was completely saved by this application, although an adjoining field *not salted*, was completely destroyed by this sort of vermin.

Salt, too, is a complete prevention of the ravages of the *weevil* in corn. It has been successfully employed in the proportion of a pint of salt to a barrel of wheat.

The *black and green fly* may be killed by dipping the point of the young shoots of plants infected with them into a thin cream, composed of stiff yellow clay mixed with water; the clay will, it is true, look dirty upon the trees for a few days, but the first shower of rain washes it off, and the shoots will look more healthy than before the application; "there is no fear," says Mr. Loudon, "of the return of the insects that season." The scale in pines may be de-

stroyed by the same mixture. The bug (*Aphis lanigera*) upon fruit trees may be killed by the use of the same clay and water, made as thin as white-wash, and mixing with every 6 gallons of it 2 lbs. of cream of tartar, 1 lb. of soft soap, and half a peck of quick lime. "When you think," adds Mr. Loudon, "that the weather is likely to continue dry for some time, take a bucketful of this mixture, and with a large brush wash over the bark of the trees, wherever you think it has been infected with the bug. A man will dress a number of trees over in a few days with a white-wash brush and this liquid; it is only necessary to be careful to do it in dry weather so that the rain may not wash over the mixture for some time. *Flies and wasps.* A mixture of pepper, sugar and water, will speedily attract and destroy them. (Gard. Mag. No. 37; Quart. Jour. Agr. vol. iii. p. 1071.) *Moss and insects.* Mr. Thomas recommends that the trees infected should be sprinkled with a fine powder in March, and again in October, on a foggy day when the trees are damp but not dripping, and I have no doubt of its efficacy. The powder may be composed as follows: slack five bushels of lime, hot from the kiln, with common salt and water, (say 1 lb. of salt to each gallon of water.) When the lime has fallen to a fine powder, add, by small quantities at a time, a bushel of soot, stirring it until it is completely incorporated. Mr. Thomas has found that one man can dust over with the powder fifty trees in a day, and that the moss in the turf, under fruit trees thus treated, is also completely destroyed by the application. (Trans. Soc. Arts.) *Worms* in grass plots may be readily destroyed by copiously watering the turf with lime water (half a pound of the hottest quick lime well stirred in each gallon of water,) or by sprinkling common salt (20 bushels per acre) over it, or by strewing it on gravel walks in rather larger proportions. Lime is recommended for the destruction of the worm which sometimes injures young larch plantations, by Mr. Menzies (Com. Board of Agr. vol. vi. p. 163;) coal tar and tar water, to preserve hoop poles and other wood from the ravages of insects. (Ibid. p. 166.) The caterpillars on cabbage may be readily destroyed by sprinkling them with fine powdered lime; and when, some years since, a black caterpillar attacked very generally and extensively the turnips, in some instances they were very successfully destroyed by turning into the fields considerable numbers of common ducks. Heavy rolling, especially during the night, is in many cases destructive of slugs. Salt, and also rape powder, are pernicious to the wire-worm. On many soils, the wheat crop sown after a summer fallow is never attacked by these vermin. Mr. Hillyard thinks he has escaped their ravages of late years, by ploughing his clover lays for wheat after the first year, (Prac. Farm. p. 115.) And it is certain that by occasional material variations in the rotation of crops, the number of predatory insects may be very considerably reduced (by depriving the larva of their particular and essential food,) in cultivated soils.

Mr. Knight recommended the use of carbonate of ammonia for the destruction of the insects upon the pine and other plants. (Sel. Papers, p. 245.) Mr. Baldwin, in effect, does the same, when he commends the use of the steam from hot fermenting horse dung. (Prac. Direct. p. 30.) Mr. Robertson found soot (which contains ammonia, when diffused in water, to be an excellent application. (Gard. Mag. vol. ii. p. 18.) When speaking of the use of fermenting horse dung, in the destruction of insects, Mr. Knight remarked, "I conclude the destructive agent in this case is ammoniacal gas, which Sir Humphrey Davy informed me he had found to be instantly fatal to every species of insect; and, if so, this might be obtained at a small expense by pouring a solution of crude murate of ammonia upon quick-lime; the stable or cow house would afford an equally efficient, though less delicate fluid. The ammoniacal gas might, I conceive, be impelled by means of a pair of bellows amongst the leaves of the infected plants, in sufficient quantity to destroy animals without injuring vegetable life; and it is a very interesting question to the gardener, whether his hardy enemy, the red spider, will bear it with impunity." Ammonia seems peculiarly distasteful to insects. Carbonate of ammonia is often successfully placed in meat safes to prevent the attack of flies.

From the American Farmer, for March.

SOME THINGS TO BE DONE.

Old Fields.—If you have any old fields on your place, which mortify your feelings every time you look upon them—pass your harrow over them, then sow a bushel of plaster thereon, per acre, keep your cattle off until fall, and unless we are much mistaken, you will have an excellent pasture of which *you* may feel proud, and for which your stock would be grateful, were it possible for the instinct of their nature to give birth to that feeling. We say to one and all, thus situated, try our prescription.

Hauling out manure.—This work should command your earliest attention; and when you shall have done hauling out all you may have prepared, look to your lanes, roads, woods and other places, gather up all you can find, and take it also to your fields destined for corn—don't be afraid of giving that crop too much manure, lest you *burn* it up—it's a fallacy for a farmer to talk of burning up such a plant by feeding it too luxuriously.

Oats.—This crop should be got in as *early* as the ground is sufficiently dry to afford a *dry bed:* and if you desire to have such a crop as you would not be ashamed to tell the number of bushels per acre, you must sow in good ground, or manure it; for no man ever yet reaped a remunerating crop of oats from a poverty stricken soil. If no animal manure be at command, sown on every acre you

may put in oats, a bushel of plaster—if you apprehend danger from the cut-worm, in addition to the plaster, sow 2 bushels of salt per acre. In preparing your ground, plough deep, pulverise thoroughly with the harrow, and after you have sown your seed, harrowed it in, and roll the ground, if it should need it, run water furrows so as to keep the crop dry. If your ground be good, sow from 2½ to 3 bushels per acre, and in no event sow less than 2; by heavy sowing you exclude weeds, and secure to the oat plants the exclusive benefit of the pabulum of the earth.

Early Potatoes.—Whether you may desire to raise a patch of early potatoes for home consumption or market, the earlier they are got in after the ground can be *properly* prepared the better. If you desire to reap a *brag crop*, *take pains*, and you will not be disappointed. Spread at the rate of 20 loads of manure to the acre, plough it in, harrow and roll your ground, lay off furrows 3 feet apart, drop your potato sets 8 inches asunder, cover them with long manure in the drills, *sow* plaster over the manure, and cover your potatoes. When your potatoes first begin to show above ground, run the harrow through the patch; when the plants are from 2 to 3 inches high, run the cultivator through them close to the rows: in ten days from that give them a slight hilling with the plough, laying the furrow *flat* at top, and if any weeds be left, exterminate them with the hoe: in a week more, run the cultivator again through them, as before, and in a few days thereafter plough again, taking care to increase the size of the hill, and to be sure to preserve a *flat* surface. If the weather should be favorable to the growth of weeds, cut them out with the hoe, and with this management we think we can promise you a good crop of early potatoes.

The potatoes, as cut for planting should be dried in plaster or ashes.

Subsoil Ploughing.—May we ask you to subsoil a few acres of your *corn-field*, so that you may be able to compare its relative value in the preparation of the land for corn, that most important of all plants. We believe it would greatly increase the product, and, therefore, desire, as a *favor*, that you undertake an *experiment* and *report* to us the *result* next fall.

From the Farmer's Cabinet.

STRAWBERRIES.

I noticed a piece in a late number of your paper, upon the cultivation of strawberries, in which the writer appears to doubt whether there are male and female plants. It is known to botanists that all the plants of strawberries have both male and female organs upon each flower. But upon one plant the male organs will so predominate that it will rarely bear any fruit; this for practical purposes, I

call the male plant. It is easily distinguished—is a larger, stronger plant; has larger and rougher flowers than the other: all the runners from it produce the same kind of plants, with the like kind of flowers. The male plant being stronger and not reduced by bearing, spreads rapidly over the ground and smothers the bearing plants, and the strawberry bed becomes barren. Where strawberry beds are mixed in this way, with barren and productive plants, it can certainly be told when they are in bloom, what parts of the bed will bear. *Let those who would have productive strawberry beds, not neglect to set out a majority of female plants*, whatever may be said by botanists and horticulturists to the contrary. One male to a dozen females, will be sufficient. Mr. Longworth, of Cincinnati, I think, first called the attention of the public to the above facts. I have known them for about twenty years, and have had productive beds. I have seen beds where a single female flower could not be found: and in the season for fruit, twenty strawberries could not be found upon a rod of ground. I had four different kinds of strawberries brought from your city some years ago, and every plant of each kind was a male plant, consequently they have never produced any fruit worth speaking of S. D. MARTIN.

Colbyville, Kentucky, Jan. 1844.

EXPERIMENT WITH POTATOES.

Mr. Charles Colfelt of Mifflin co. Pa., informs us that he raised last season, 90 bushels potatoes on a quarter of an acre of land, and he thinks he should have had 125 bushels if the season had been favorable. He planted the potatoes on the 8th of May, in rows three feet apart. After they came up, he hauled out eight cart loads of barn manure about half rotted, and spread over the tops on the rows—then run a one-horse plough on each side of the rows, to throw the manure over the potatoes and cover the manure with earth. Harvested in November. The same man also raised 120 bushels of potatoes on a "third of an acre" of land, which had been previously planted to corn and was destroyed by "cut worms." He put on eight four-horse loads of long manure, spread it, furrowed the ground three feet apart, dropped the potatoes and covered them with the plough. [*Albany Cultivator.*

FAT HOGS.

We lately copied from the Greenville Monntainer, a notice that Capt. Long, of that District had slaughtered a hog weighing 688 lbs. gross, and saying that if any one raises larger hogs than that, it would like to hear from them. James M'Kinney, Esq. P. M., at Hickory Grove, York District, authorizes us to inform it, that he slaughtered one after Christmas, which weighed 756 lbs.

ERRATA.

In January No. page 34, line 25, for "Chester," read *Charleston*, after Mr. R. W. Roper's name.